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AMENDMENTS TO THE CLAIMS

1 (Currently Amended):   A self-contained programmable electronic radio system

multifunction slice comprising:

an antenna interface;

a plurality of bidirectional transceivers, wherein each of the transceivers is

operable over a wide band of frequencies in order to support a wide range of radio

function frequencies;

a programmable processor coupled to said plurality of multi-band transceivers, to

control operation of the transceivers and to process data transmitted and data received

through the transceivers and operable to support at least two independent radio function

threads through said plurality of multi-band transceivers; and

an [[a]] avionics interface including an [[a]] avionics network input for receiving

first data to be transmitted through the transceivers and a avionics network output for

second data received from the transceivers.

2 (Original): The electronic radio system multifunction slice of claim 1, wherein said

processor is operable to perform a digital signal processing function selected from the

group consisting of modulation, demodulation, encoding/decoding, detection, encryption

and decryption.

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3 (Original): The electronic radio system multifunction slice of claim 1, wherein said at least two radio function threads support radio functions selected from the group consisting of communication, navigation, interrogation, and surveillance.

4 (Original): The electronic radio system multifunction slice of claim 1, wherein said at least two radio function threads support radio functions selected from the group consisting of voice radio communication, data network communication, electronic navigation aids, radio beacon detection, global and local grid positioning system detection, and friend-or-foe identification challenging and responding.

5 (Original): The electronic radio system multifunction slice of claim 1, wherein said antenna interface couples externally the multifunction slice to a plurality of antenna preconditioning units.

6 (Currently Amended):   A multifunction electronic radio system comprising:

    a plurality of electronic radio system multifunction slices, wherein each of said plurality of electronic radio system multifunction slices comprises:

        an antenna interface;

        a plurality of <u>bidirectional</u> transceivers coupled to said antenna interface, <u>wherein each of the transceivers is operable over a wide band of frequencies in order to support a wide range of radio function frequencies</u>; and

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a programmable processor, said processor being coupled to said plurality

of multi-band transceivers and operable to support at least two radio function

threads through said plurality of transceivers; and

a data interface coupled to the programmable processor and including a

data input for receiving data to be transmitted through the transceivers and a

data output for outputting data received from the transceivers;

wherein the plurality of multifunction slices implements a predetermined

set of radio functions,

wherein at least one of said transceivers is interconnected to a plurality of

said plurality of antenna interfaces.

wherein at least one of said transceivers is coupled to said antenna

interface;

wherein the plurality of multifunction slices implements a predetermined set of

radio functions.

7 (Original): The multifunction electronic radio system of claim 6, further comprising a

plurality of antennas, each of said antennas being coupled to an antenna

preconditioner.

8 (Original): The multifunction electronic radio system of claim 7 wherein each of said

antenna preconditioners is coupled to at least one of said electronic radio system

multifunction slices.

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9 (Original): The multifunction electronic radio system of claim 6, further comprising <u>a</u>

<u>general input/output structure that delivers information to and receives information from</u>

<u>the multifunction electronic radio system, through the network interfaces of the</u>

<u>electronic radio system multifunction slices.</u> ~~an avionics interface that provides first data~~

~~for transmission to the processor and that accepts second data received by the~~

~~transceivers.~~

10 (Currently Amended):   The multifunction electronic radio system of claim 6,

wherein<u>:</u>

        <u>each of said electronic radio system multifunction slices further comprises at</u>

<u>least one inter-slice network bus connector, to facilitate interconnection of multiple</u>

<u>slices; and</u>

        at least two of said electronic radio system multifunction slices are

interconnected ~~though~~ <u>to form</u> a radio network bus electrically isolated from the

transceivers.

11 (Currently Amended):   A method of implementing a multifunction electronic radio

system, the method comprising:

        determining a set of radio functions to be performed by said multifunction

electronic radio system;

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assigning the radio functions in said set of radio functions across a plurality of

electronic radio system multifunction slices that each include:

an antenna interface;

a plurality of <u>bidirectional</u> transceivers<u>, each of which is operable over a</u>

<u>wide band of frequencies in order to support a wide range of radio function</u>

<u>frequencies</u>;

a programmable processor coupled to said plurality of transceivers and

operable to support at least two radio function threads through said plurality of

~~multi-band~~ transceivers; and

<u>a data interface, including a data input path for data to be transmitted</u>

<u>through the transceivers and a data output path for data received from the</u>

<u>transceivers</u>; ~~an avionics interface, said avionics interface providing avionics~~

~~input and output;~~

interconnecting the antenna interfaces of said plurality of electronic radio system

multifunction slices to a plurality of antenna preconditioners; and

coupling the <u>data</u> ~~avionics~~ interfaces of said plurality of electronic radio system

multifunction slices to <u>a general input/output structure that delivers information to and</u>

<u>receives information from the multifunction electronic radio system</u>. ~~a avionics network.~~

12 (Original):   The method of claim 11, further comprising the step of configuring

the processor for encryption and decryption functions.

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13 (Original):   The method of claim 11, wherein the step of assigning further

comprises assigning the radio functions in accordance with resource assets required by

the radio functions.

14 (Currently Amended):   The method of claim 13, wherein the step of assigning

further comprises assigning the radio functions is in accordance with antenna,

transceiver, and processor resource assets asserts required by the radio functions.

15 (Original):   The method of claim 11, further comprising the step of determining

mission segments and mission segment radio functions, and wherein the set of radio

functions includes the mission segment radio functions.

16 (Currently Amended):   A multifunction aircraft radio system, said system

comprising:

        a plurality of identical multifunction radio slices for implementing radio functions,

said plurality of multifunction radio slices programmable for a plurality of radio functions,

wherein each of said plurality of multifunction radio slices comprises:

                an antenna interface;

                at least one bidirectional transceiver coupled to said antenna interface,

                said at least one transceiver being operable over a wide band of frequencies in

                order to support a wide range of radio function frequencies;

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a programmable processor; said processor coupled to said transceiver

and operable to support radio function threads using said transceiver; and

an avionics network interface including an avionics network input for data

to be transmitted through the transceivers and an avionics network output for

data received from the transceivers;

a plurality of antennas for transmitting and receiving signals, said plurality of

antennas switchably coupled to said plurality of multifunction radio slices; and

an avionics network for delivering information between said aircraft radio system

and aircraft avionics, said avionics network being switchably coupled to said plurality of

multifunction radio slices.

17 (Cancelled)

18 (Currently Amended): The system of claim 16, further comprising wherein the

programmable processor in one of the multifunction radio slices is designated as a

master processor for coordinating operation of the slices, including selecting and

interconnecting said plurality of radio functions.

19 (Previously Presented):   The system of claim 16, wherein said plurality of

multifunction radio slices may be reprogrammed in real time to accommodate a plurality

of radio functions.

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20 (Previously Presented):   The system of claim 16, wherein said plurality of radio

functions may be implemented using a minimal allocation of said plurality of

multifunction radio slices.

21 (New):   The electronic radio system multifunction slice of claim 1, and further

comprising:

        at least one inter-slice network bus connector, to facilitate interconnection of

multiple slices.

22 (New):   A multifunction electronic radio system as defined in claim 6, wherein:

        each of the electronic radio system multifunction slices further comprises at least

one inter-slice network bus connector; and

        the multifunction electronic radio system further comprises a radio network bus

interconnecting the electronic radio system multifunction slices.

23 (New):   A multifunction electronic radio system as defined in claim 6, and further

comprising an external control bus coupled to the programmable processor of at least

one of the electronic radio system multifunction slices, to facilitate transmission of

control signals directly to radio system components external to the slice.

24 (New):   The method of claim 11, and further comprising:.

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interconnecting the plurality of electronic radio system multifunction slices over

an inter-slice radio network bus, to facilitate communication between the slices.

25 (New): The method of claim 24, and further comprising:

transmitting control signals between the programmable processors of the

electronic radio system multifunction slices, over the inter-slice radio network bus

coupled to the programmable processors.

26 (New): The method of claim 11, and further comprising:

directly controlling electronic radio system components external to a multifunction

slice by transmitting control signals over an external bus coupled to the programmable

processor of at least one of the electronic radio system multifunction slices.

27 (New): A multifunction aircraft radio system as defined in claim 16, wherein:

each of the electronic radio system multifunction slices further comprises at least

one inter-slice network bus connector; and

the multifunction electronic radio system further comprises a radio network bus

interconnecting the electronic radio system multifunction slices, to facilitate

communication between the slices.

28 (New): A multifunction aircraft radio system as defined in claim 16, and further

comprising an external control bus coupled to the programmable processor at least one

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of the electronic radio system multifunction slices, to facilitate transmission of control

signals directly to aircraft radio system components external to the slice.

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